P5/20PS - P9/16PS
R8/17PS - R120/11PS(+)

GB ***Assembly and Operating Instructions***
Tubular drives for sunshades

Important information for:

- *Fitters*
- *Electricians*
- *Users*

Please forward accordingly!

These instructions must be kept for future reference.

BECKER

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General

The P5/20PS - P9/16PS and R8/17PS - R120/11PS(+) tubular drives are high-quality products with numerous performance features:

- **Installation without end stops possible (original position to position reached)**
- **Automatic recognition of end limits by means of intelligent electronics using end stop systems**
- **No need to adjust end limits: changes to canopies curtains are automatically compensated for using the end stop systems**
- **Safety shutdown in accordance with European engineering directive (protection against restarting)**
- **Optimal adjustment of closing mechanism to suit the system**
- **Low-maintenance operation of system and drive increases service life**
- **Suitable for awnings, box awnings, screens, drop arm awnings and winter garden shades**
- **No external limit switch**
- **Canopy end limits easy to set by pressing a button on the setting controls or using a switch on the drive**
- **Can be fitted on the left or right**
- **Several drives can be switched in parallel**
- **Suitable for all Becker controls**
- **Compatible with earlier motors (4-wire connecting cable)**

Please adhere to these instructions when installing and setting up the system.

Warranty

Structural modifications and incorrect installation which are not in accordance with these and our other instructions can result in serious injuries, e.g. crushing of limbs. Therefore, structural modifications should only be carried out with our prior approval and in accordance with our instructions, particularly the information contained in these Assembly and Operating Instructions.
Any further processing of the products which does not comply with their intended use is not permitted.
The end product manufacturer and fitter have to ensure that all the current statutory, official regulations and, in particular, EMC regulations are adhered to during utilisation of our products, especially with regard to end product assembly, installation and customer advice.

Safety Information

The following safety instructions and warnings are intended to avert hazards and to prevent damage to property and personal injuries. **Please retain for future reference.**

Caution	Denotes a potentially hazardous situation. If this is not avoided, injuries may result.
Attention	Denotes a potentially hazardous situation. If this is not avoided, the product or something in its vicinity may be damaged.
Note	Denotes user tips and other useful information.

Important safety instructions for the user
Caution! Failure to observe these instructions can lead to serious injuries.

- **All operational work including maintenance and cleaning, on electrical installations as well as other parts of the construction must always be performed by authorised specialists, especially by qualified electricians.**
- **Do not allow children to play with control units.**
- **Systems have to be regularly checked by authorised specialists for wear and damages.**
- **Always put damaged systems out of operation immediately until they are repaired by an authorised specialist.**
- **Do not operate equipment if people or objects are within the danger zone.**
- **Observe the danger zone of the equipment during operation.**
- **Bring the equipment to a stop and disconnect the mains power supply when maintenance and cleaning jobs are performed either on the system itself or in the immediate vicinity of it.**
- **Ensure that there is an adequate distance (at least 40 cm) between moving parts and adjacent objects.**
- **Crushing and shearing points must be avoided or protected.**

Important safety instructions for the installation and commissioning
Caution! Failure to observe these instructions can lead to serious injuries.

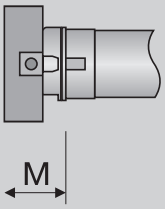
- **Please comply with the safety instructions EN 60 335-2-97. Please note that these safety instructions cannot be assumed as being complete, since this standard does not consider all the possible causes of risk. For example, the construction of the operated product, the effectiveness of the drive in the location of installation or the mounting of the final product in the end user's place of usage cannot be taken into consideration by the drive manufacturer.**
  If any questions or concerns regarding the safety instructions contained in the standard arise, please contact the manufacturer of the respective part or end product.
- **All operational work, including maintenance and cleaning, on electrical installations as well as other system parts must always be performed by authorised specialists, especially qualified electricians.**
- **During operation of electrical or electronic equipment and units, certain components are subject to a hazardous electrical voltage. Physical injuries or damage to property can result in the event of unqualified interventions or failure to comply with the warning notices.**
- **All applicable standards and regulations for the electrical installation must be complied with.**
- **Only use spare parts, tools and additional devices which are authorised by Becker.**
- **Unapproved third party products or modifications to the system and its accessories represent a risk to your safety and the safety of others. This means that the utilisation of unapproved third party products, or modifications which have not been agreed with or approved by us are prohibited. We shall not accept liability for damages arising from such actions.**
- **Before installation, shut down all lines and control devices that are not essential for operation.**
- **Position control devices within sight of the driven product at a height of over 1.5 m.**
- **Ensure that there is an adequate distance (at least 40 cm) between moving parts and adjacent objects.**
- **Nominal torque and duty cycle must be suitable for the requirements of the driven product.**
- **Technical data - nominal torque and service life are located on the type plate of the tubular drive.**
- **Moving parts of drives intended to be installed at a height of less than 2,5 m above floor level or other access level need to be protected**
- **Crushing or shearing points must be avoided or protected.**
- **Observe safety distances in accordance with DIN EN 294.**
- **When installing the drive, an all-pole separation capability from the mains with at least 3 mm contact opening width per pole must be provided (EN 60335).**
- **If the mains connection cable is damaged, it may only be replaced by the manufacturer.**
- **Drives with a H05VV-F connection cable are only to be used inside the building.**
- **Drives from Becker Antriebe are to be mounted and operated solely with mechanical accessory components shown in the current Becker product catalogue.**

Intended use

Tubular drives of the **types P5/20PS - P9/16PS et R8/17PS - R120/11PS** are designed for operating awnings, screens and winter garden shades only.
Use in coupled systems is only possible if all subsystems are fully synchronised and reach the end limits at the same time.
Tubular drives of the **types R12/17PS+ - R120/11PS+** are specially designed for operating cassette awnings with higher requirements for closing (accurate closing of the cassette).
Other applications, utilisation and modifications are not permitted in order to protect the safety of the users and others, since these actions can impair the system's safety, resulting in personal injuries and property damage. Becker-Antriebe shall not accept liability for damages arising from such actions. Always observe the information in these instructions when operating or repairing the system. Becker-Antriebe shall not accept liability for damages resulting from incorrect usage.

Mounting and installation instructions

1



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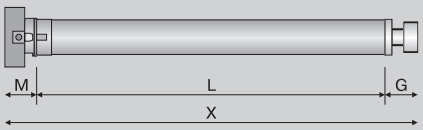

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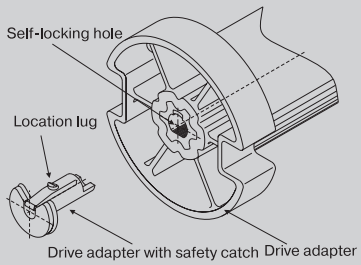
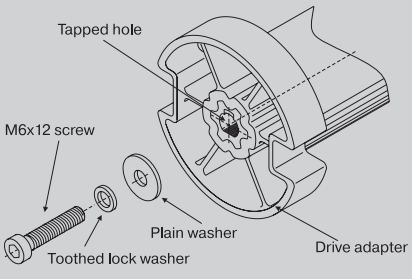
P5/20PS to R20/17PS(+)



R30/17PS(+) to R120/11PS(+)



Attention
Drives from Becker Antriebe are to be mounted and operated solely with mechanical accessory components shown in the current Becker product catalogue.

The assembler must check in advance that the resistance of the brickwork or sunshade system meets requirements (torque of the drive plus weight of the shutter curtain).

Caution
Electrical connections may only be carried out by a qualified electrician. Prior to assembly, the power supply should be disconnected. Please give the enclosed connection information to the electrical fitter carrying out the work.

1. Establish the room required at the side for mounting (M) of the head piece, thrust bracket and motor bracket (Fig. 1), in order to calculate the required length of roller tube. The internal dimension of the roller shutter box or sunshade system (X) minus the overall length of wall bracket+head piece (M) and thrust bracket (T) gives the length (L) of the roller tube:
   L=X-(T+M) (Fig. 2).
   Measure the distance from the wall bracket and connecting head since this can vary according to the combination of motor and bracket.
2. Then fix wall and thrust bracket.
   Please observe the following when assembling the drive:

- **Assembly of the drive adapter with locking device for the P5/20PS to R20/17PS(+) drives:**
  You can see how to insert the locking device from its shape. When inserting the locking device, ensure that the catch locks into place. You will hear a click. Check that the locking device is in position properly by pulling on the drive adapter (Fig. 3).
- **Assembly of the drive adapter with screw connection for the R30/17PS(+) to R120/11PS(+) drives:**
  Here the drive is fixed with an M6x12 screw. It is secured with a plain washer for M6 and a suitable toothed washer (Fig. 3).

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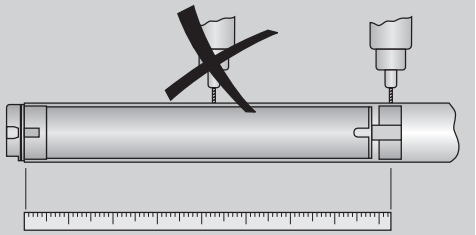

3. Before fitting in the barrel, take the measurement from barrel end to the centre of the drive adapter and mark on the barrel (Fig. 4).

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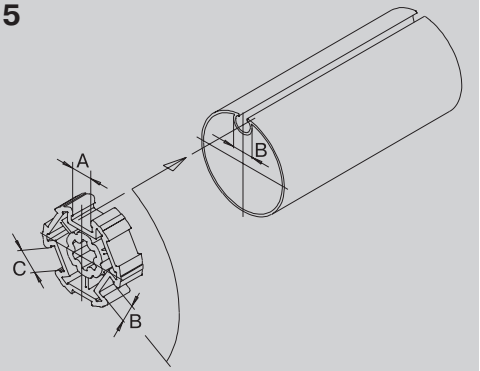

- **For profile tubes:**
  For some drive adapters, tolerances of the channel widths in different roller tubes can be balanced by turning the drive adapter in a different channel slot. These channel slots come in different sizes and make it an exact fit possible when the drive is installed (Fig. 5).
- **For round tubes:**
  Release the tube from the motor died in advance, so that the cam of the ring can also be inserted into the tube. The cam of the ring must not engage with the tube. For rings without pulling cams, the roller tube must be connected to the ring by a 4.8 x 10 mm sheet-metal screw (Fig. 6).

4. Assemble the tubular drive with the relevant ring (A) and drive adapter (B). Insert the tubular drive with the pre-assembled ring and drive adapter into the tube as shown. Ensure that the ring and drive adapter are correctly positioned in the tube (Fig. 7).
   The drive adapter of the tubular drive is connected to the roller tube as follows:

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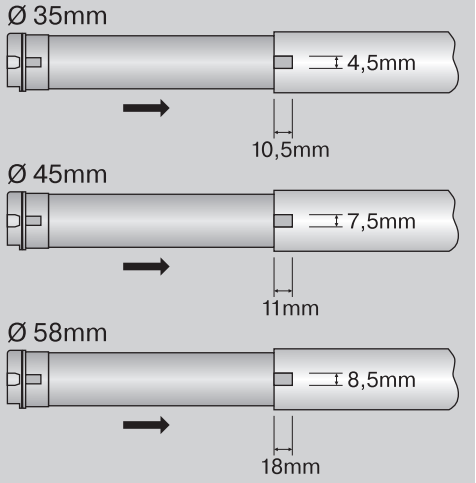

Size of drive [mm]	Tubes–Ø [mm]	Torque max. [Nm]	Fastening screws for drivers (4 x)
Ø 35	40 mm plastic drive adapter	13	flat-headed sheet-metal screw ST 4.8 x 10 DIN 7982
Ø 45	60 - 70 mm plastic or diecast drive adapter	50	flat-headed sheet-metal screw ST 6.3 x 10 DIN 7982
Ø 58	63 - 120 mm diecast drive adapter	120	flat-headed sheet-metal screw ST 9.5 x 10 DIN 7982
Ø 58	85 - 133 mm aluminium drive adapter	120	flat-headed screws M8 x 16 DIN 7991

Attention
When drilling into the roller tube, never drill near the tubular drive!
The tubular drive must not be hit into the tube or dropped into the roller tube!

Becker also recommends that the counter bearing be joined to the roller tube.

5. Hang the tube in the bracket and secure the motorhead piece in the drive bracket.
6. Hang the mounted unit consisting of tube, tubular drive and thrust bracket in the bracket.

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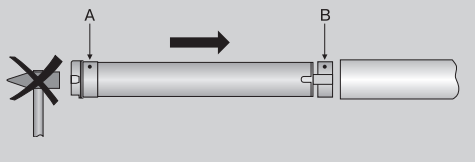
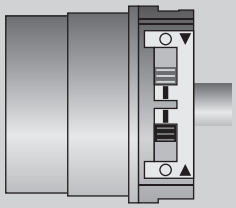


Positioning the end limits

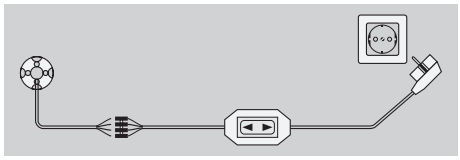
There are 3 options for setting the end limits:
a) Point when canopy is extended to point when canopy is retracted without end stop
b) Point when canopy is extended to end stop
c) End stop when canopy is extended to end stop

The final limit position becomes fixed, after the tubular drive has turned off automatically, in the desired position, three times.

Note
If the tubular drive switches off prematurely because it encounters an obstacle, it is possible to release this obstacle by briefly moving the canopy in the opposite direction, removing the obstacle and then moving the canopy up or down again to set the new end limit.



Setting the end limits using the switches



Attention
The switch control set is not designed for permanent use, but only for initial operation.

Connect the flexible leads of the tubular drive to those of the switch control set (product no. 4901 002 181 0) or of the operator's control according to the colour coding and switch on the power supply.

a) Point when canopy is extended to point when canopy is retracted without end stop

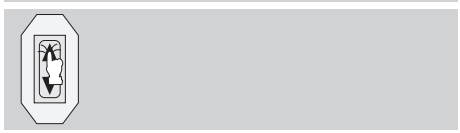
Note
When the end limits are set using this method, no adjustment is made for the length of the canopy.

Move both switches to the reset position.

Press the control command briefly.

Move the canopy to the required end limit when extended.

Move the switch with the rotation arrow for extending the canopy from the reset position to the programming position.



Then move the canopy to the required end limit when retracted.

Now move the switch with the rotation arrow for retracting the canopy from the reset position to the programming position.

The end limits are set.

b) Point when canopy is extended to end stop

Move both switches to the reset position.

Press the control command briefly.

Move the canopy to the required end limit when extended.

Move the switch with the rotation arrow for extending the canopy from the reset position to the programming position.

Then move the canopy up to the upper, permanent end stop until the tubular drive switches off automatically.

The end limits are set.

c) End stop when canopy is extended to end stop

Move both switches to the reset position.

Press the control command briefly.

Move the canopy to the outer, permanent end stop. The tubular drive switches off automatically.

Then move the canopy up to the inner, permanent end stop.
The tubular drive switches off automatically.

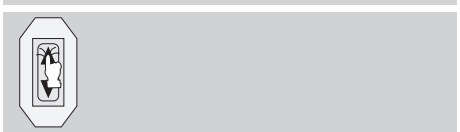
The end limits are set.

Deleting the end limits using the switches

a) Deleting the end limits individually

Note
It is only possible to delete an individual limit stop if the point when the canopy is extended to the point when the canopy is retracted without end stop has been programmed using the switches.

Move the switch for the relevant end limit from the programming position to the reset position.



Press the control command briefly.

The end limit is deleted.

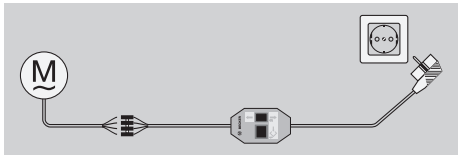
b) Deleting both end limits

Move both switches from the programming position to the reset position.

Press the control command briefly.

Both end limits are deleted.

Setting the end limits using the setting controls



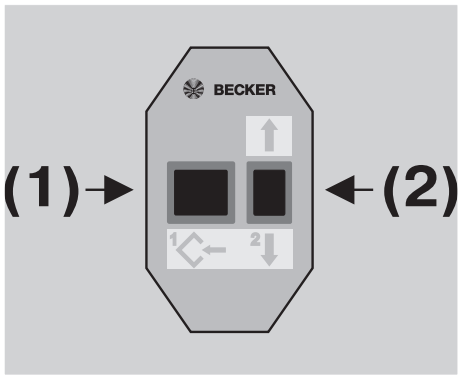
Caution

The switch control set is not designed for permanent use, but only for initial operation.

Connect the flexible leads of the tubular drive to those of the setting controls (product no. 4935 200 011 0) according to the colour coding and switch on the power supply.

Note

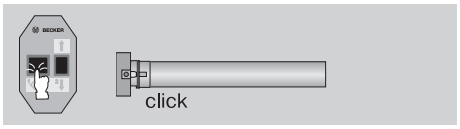
If the tubular drive switches off prematurely because it encounters an obstacle, it is possible to release this obstacle by briefly moving the canopy in the opposite direction, removing the obstacle and then moving the canopy up or down again to set the new end limit.



Action	Reaction
a) Point when canopy is extended to point when canopy is retracted without end stop	
Note **When the end limits are set using this method, no adjustment is made for the length of the canopy.**	
Move both switches to the programming position.	
Move the canopy to the required end limit when the canopy is extended (2).	
Press the programming button (1) of the setting controls for 3 seconds.	This is acknowledged by a click of the tubular drive.
Then move the canopy to the required end limit when retracted (2).	
Now press the programming button (1) of the setting controls for 3 seconds.	This is acknowledged by a click of the tubular drive.
The end limits are set.	

b) Point when canopy is extended to end stop
Move both switches to the programming position.

Move the canopy to the required end limit when the canopy is extended (2).



Press the programming button (1) of the setting controls for 3 seconds.

This is acknowledged by a click of the tubular drive.

Then move the canopy up to the upper, permanent end stop (2).

The tubular drive switches off automatically.

The end limits are set.

c) End stop when canopy is extended to end stop
Move both switches to the programming position.

Move the canopy to the outer, permanent end stop (2).

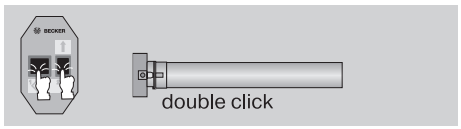
The tubular drive switches off automatically.

Then move the canopy up to the inner, permanent end stop (2).

The tubular drive switches off automatically.

The end limits are set.

Deleting the end limits using the setting controls

	Action	Reaction
	a) Delete the end limits individually Move the canopy to the final position which is to be deleted.	
	1. Press the reset button (1)	
	2. Additionally press and hold the downward button (2).	
	3. Now release the reset button (1), but keep the downward button (2) pressed.	
	4. Additionally press the reset button (1) again. The final position has been deleted.	The tubular drive makes a “clack-clack” sound to confirm.
	b) Deleting both final positions Move the canopy to a position between both final positions.	
	1. Press the reset button (1)	
	2. Additionally press and hold the downward button (2).	
	3. Now release the reset button (1), but keep the downward button (2) pressed.	
	4. Additionally press the reset button (1) again. Both final positions have been deleted.	The tubular drive makes a “clack-clack” sound to confirm.

Technical Data

Type	P5/20PS	P5/30PS	P9/16PS	R8/17PS	R12/17PS(+)
Nominal torque (Nm)	5	5	9	8	12
Output speed (min^{-1})	20	30	16	17	17
Limit switch range	64 revolutions				
Mains voltage	230V/50Hz				
Power consumption (W)	115	115	110	115	125
Nominal current consumption (A)	0,47	0,47	0,47	0,5	0,53
Operating mode	S2 4 min.				
Protection class	IP 44				
Min. tube diameter (mm)	37			47	

Type	R20/17PS(+)	R30/17PS(+)	R40/17PS(+)	R50/11PS(+)	R44/14PS(+)
Nominal torque (Nm)	20	30	37	50	44
Output speed (min^{-1})	17	17	17	11	14
Limit switch range	64 revolutions				
Mains voltage	230V/50Hz				
Power consumption (W)	175	225	230	255	255
Nominal current consumption (A)	0,77	0,96	1,18	1,1	1,2
Operating mode	S2 4 min.				
Protection class	IP 44				
Min. tube diameter (mm)	47				60

Type	R50/17PS(+)	R60/11PS(+)	R70/17PS(+)	R80/11PS(+)	R120/11PS(+)
Nominal torque (Nm)	50	60	70	80	120
Output speed (min^{-1})	17	11	17	11	11
Limit switch range	64 revolutions				
Mains voltage	230V/50Hz				
Power consumption (W)	315	265	430	310	435
Nominal current consumption (A)	1,4	1,2	1,9	1,4	1,9
Operating mode	S2 4 min.				
Protection class	IP 44				
Min. tube diameter (mm)	60				

Information for the Electrician

Becker tubular drives with electronic limit switching can be parallel connected. The maximum switching contact loading of the control device (timer, relay control, switch, etc.) must be observed.
Use external conductor L1 to control the up and down direction. Other devices or consumption units (lamps, relays, etc.) must not be directly connected to the drive connection cables. For this purpose, the drives and additional units must be decoupled by relay controls.
When installing the drive, an all-pole separation capability from the mains with at least 3mm contact opening width per pole must be provided (EN 60335).
Attention: Only use mechanically or electrically locked switching elements with a marked zero position! This also applies when drives with **electronic and mechanical** limit switching are used in the same system.
The changeover time for changing the running direction must be at least0,5 s. Switch and control must not execute simultaneous UP and DOWN commands.
To operate drives with electronic limit switching, only use control elements (time controls) which do not draw N potential via the drive. The outputs of the control element must be potential-free in the neutral position.
Protect the electrical connections from damp.

Note

Becker tubular drives bear the CE mark. These drives comply with the valid EU guidelines and meet EMC regulations.

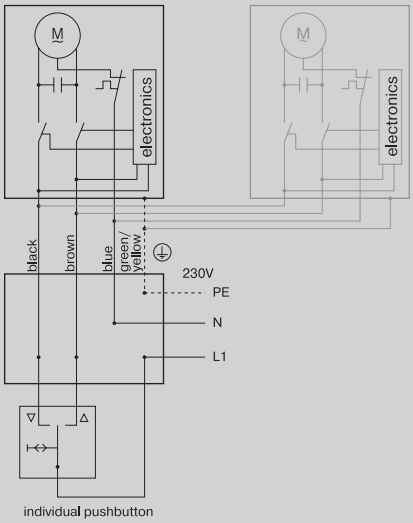
If the drive is to be operated with units which contain sources of interference, the electrician must ensure suitable interference suppression for the relevant devices.

What to do if…?

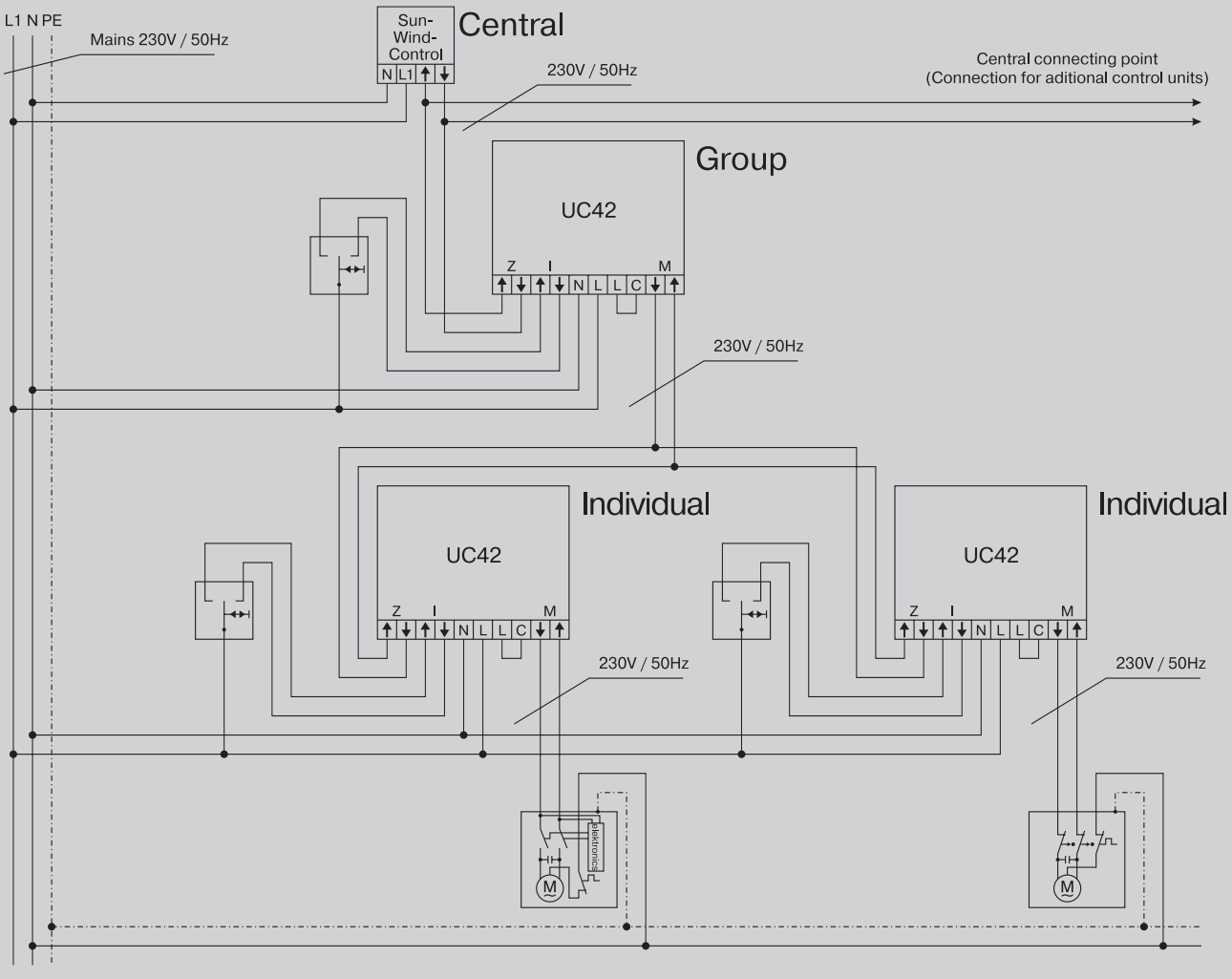
Problem	Cause	Remedy
Tubular drive overruns the end limit or does not reach the set end limit..	1. A short circuit caused by dampness.	1. Investigate source, dry out the system and reprogramme.
	2. External devices are connected to the power leads of the tubular drive.	2. Check electrical installation, remove external device if connected, reprogramme system.
	3. L1 and N connection have been reversed.	3. Exchange L1 and N (N = blue, L1 = black/ brown), reset the end limits.
	4. End stops have become detached or one or more suspension devices have broken.	4. Repair system; reset tubular drive, then reset the end limits.
The tubular drive does not retract after setting the extended limit stop.	The tubular drive has been accidentally extended further and switches off automatically. Both end limits have now been set in the tubular drive.	Delete the limit stops, reset the outer end limit and immediately retract.
Tubular drive stops arbitrarily, impossible for it to move further in the same direction.	1. Tubular drive is overloaded.	1. Use a more powerful tubular drive.
	2. Sunshade system keeps jamming, friction is too high.	2. Ensure that the sunshade system runs smoothly.
	3. Fitting a tubular drive which has end limits already programmed.	3. Delete the end limits and reinstall them.
Tubular drive does not run in the direction required.	1. Tubular drive is overheated.	1. The tubular drive is operational again after a few minutes.
	2. Tubular drive is faulty (does not work even after standing still for a long period of time).	2. Replace the drive; carry out RESET with the programming pushbutton. No click may be heard (emergency programme), tubular drive can be moved up and down using the setting controls for the purpose of dismounting the drive.
	3. Tubular drive switched off when it encountered an obstacle the last time it moved in the same direction.	3. Move the curtain or canopy away from the obstacle, remove the obstacle and set the drive to move in the direction required.
	4. Electrical connection faulty.	4. Check the electrical connection.
Tubular drive only runs for approx. 5 secs.	Tubular drive is in error mode (obstacle recognition malfunctioning).	Reset the end limits or replace the tubular drive.
When you attempt to set the end limits using the setting controls, this does not work.	The end limits have already been set using the switches.	Move both switches to the reset position. Press the control command briefly. Move both switches to the programming position simultaneously. Reset the end limits using the setting controls.
When you attempt to set the end limits using the switches, this does not work.	The end limits have been reached more than 16 times.	Move both switches to the reset position. Press the control command briefly. Reset the end limits.
Tubular drives switches off automatically before programming the desired 1. Final position (final position of extention).	Drive has recognized an increase in torque.	1. Drive past this position. 2. Push the Reset-button while being at this position.

Sample wiring diagrams

Controlling one/several drive(s) via a single switch/button



Central, group and individual control using Centronic UnitControl UC42



Subject to technical changes without notice

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